# Sequence Listing

<110> KIM, Bum-Joon
BIOMEDLAB CORPORATION

<120> PRIMERS FOR AMPLIFYING HSP 65 GENE OF MYCOBACTERIAL SPECIES, HSP 65 GENE FRAGMENTS AND METHOD OF IDENTIFYING MYCOBACTERIAL SPECIES WITH THE SAME

<130> OPP021096KR

<150> KR 10-2002-0004297
<151> 2002-01-24

<150> KR 10-2002-0011648
<151> 2002-03-05

<160> 56

<170> KopatentIn 1.71

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<211> 604
<212> DNA
<213> Mycobacterium abscessus

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aggtctgcgt aacgtcgccg ccggcgccaa cccgctcggc ctgaagcgcg gtatcgagaa 180

ggccgtcgag aaggtcaccg agacgctgct gaagagcgcc aaggaggtcg agaccaagga 240

gcagatcgcg gccacggccg gtatctccgc gggcgaccag tccatcggcg acctgatcgc 300

cgaggccatg gacaaggttg gtaacgaggg tgtcatcacc gtcgaggagt ccaacacctt 360

cggcctgcag ctggagctca ccgagggtat gcgcttcgac aagggctaca tctcgggcta 420

cttcgtgacc gacgccgagc gtcaggaagc cgtcctggag gatccctaca tcctgctggt 480

# Sequence Listing

cggcaagccg ctgctgatca tcgccgagga cgtcgagggc gaggctctct ccactctggt 600

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<211> 604
<212> DNA
<213> Mycobacterium africanum

<400> 2
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gggcctgcgc aacgtcgcgg ccggcgccaa cccgctcggt ctcaaacgcg gcatcgaaaa 180

ggccgtggag aaggtcaccg agaccctgct caagggcgcc aaggaggtcg agaccaagga 240

gcagattgcg gccaccgcag cgatttcggc gggtgaccag tccatcggtg acctgatcgc 300

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cttcgtgacc gacccggagc gtcaggaggc ggtcctggag gacccctaca tcctgctggt 480

cagctccaag gtgtccactg tcaaggatct gctgccgctg ctcgagaagg tcatcggagc 540

cggtaagccg ctgctgatca tcgccgagga cgtcgagggc gaggcgctgt ccaccctggt 600

cgtc 604

<210> 3
<211> 604
<212> DNA
<213> Mycobacterium asiaticum

# Sequence Listing

<400> 3

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gggcctgcgc aacgttgccg caggcgccaa cccgctgggc ctgaagcgcg gcatcgagaa 180

ggccgtcgag aaggtcaccc agaccctgct cagctcggcc aaggacgtcg agaccaagga 240

gcagatcgcg gccaccgcgg gtatttccgc gggcgaccag tcgatcggcg acctgatcgc 300

cgaggcgatg gacaaagtcg gcaacgaggg tgtcatcacc gtcgaggagt ccaacacctt 360

cggcctgcag ctcgagctca ccgagggcat gcggttcgac aagggttaca tctcgggcta 420

cttcgtcacc gacgccgagc gtcaggaagc cgtcctggag gacccctaca tcctgctggt 480

ttccagcaag gtgtcgaccg tcaaggacct gctgccgctg ctggagaagg tcatccaggc 540

cggcaagccg ctgctgatca tcgccgagga cgtcgagggc gaggcgctgt ccaccctggt 600

cgtc 604

<210> 4
<211> 604
<212> DNA
<213> Mycobacterium aichiense

<400> 4

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aggtctgcgc aacgtcgctg ccggcgccaa cccgctcggc ctgaagcgcg gcatcgagaa 180

ggccgtcgag aagatcaccg agacgctcct caagagcgcc aaggaggtcg agaccaagga 240

ccagatcgcg gccaccgccg ggatctccgc gggcgaccag accatcggtg acctgatcgc 300

# Sequence Listing

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cttcgtgacc gacgccgagc gtcaggaagc ggtcctcgag gatccgtaca tcctgctggt 480

gtcgtcgaag gtctcgaccg tcaaggacct gcttcccttg ctggagaagg tcattcagtc 540

gggcaagccg ctgctgatca tcgccgagga cgtcgagggc gaagccctgt ccaccctggt 600

ggtc 604

<210> 5
<211> 604
<212> DNA
<213> Mycobacterium avium

<400> 5
ggaggacccg tacgagaaga tcggcgccga gctggtcaag gaagtcgcca agaagaccga 60

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gggcctgcgc aacgtcgcgg ccggcgccaa cccgctgggt ctcaagcgcg gcatcgagaa 180

ggccgtcgag aaggtcaccg agaccctgct caagtcggcc aaggaggtcg agaccaagga 240

ccagatcgct gccaccgcgg ccatctccgc gggcgaccag tcgatcggcg acctgatcgc 300

cgaggcgatg gacaaggtcg gcaacgaggg cgtcatcacc gtcgaggagt ccaacacctt 360

cggcctgcag ctcgagctca ccgagggtat gcggttcgac aagggttaca tctcgggcta 420

cttcgtcacc gacgccgagc gtcaggaagc cgtcctcgag gatccgttca tcctgctggt 480

cagctccaag gtctcgaccg tcaaggacct gctgccgctg ctggagaagg tcatccaggc 540

cggcaagccg ctgctgatca tcgccgagga cgtcgagggc gaggccctgt ccaccctggt 600

cgtc 604

# Sequence Listing

<210> 6
<211> 604
<212> DNA
<213> Mycobacterium bovis

<400> 6
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gggcctgcgc aacgtcgcgg ccggcgccaa cccgctcggt ctcaaacgcg gcatcgaaaa 180

ggccgtggag aaggtcaccg agaccctgct caagggcgcc aaggaggtcg agaccaagga 240

gcagattgcg gccaccgcag cgatttcggc gggtgaccag tccatcggtg acctgatcgc 300

cgaggcgatg gacaaggtgg gcaacgaggg cgtcatcacc gtcgaggagt ccaacacctt 360

tgggctgcag ctcgagctca ccgagggtat gcggttcgac aagggctaca tctcggggta 420

cttcgtgacc gacccggagc gtcaggaggc ggtcctggag gacccctaca tcctgctggt 480

cagctccaag gtgtccactg tcaaggatct gctgccgctg ctcgagaagg tcatcggagc 540

cggtaagccg ctgctgatca tcgccgagga cgtcgagggc gaggcgctgt ccaccctggt 600

cgtc 604

<210> 7
<211> 604
<212> DNA
<213> Mycobaterium bovis BCG

<400> 7
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tgacgtcgcc ggtgacggca ccacgacggc caccgtgctg gcccaggcgt tggttcgcga 120

# Sequence Listing

gggcctgcgc aacgtcgcgg ccggcgccaa cccgctcggt ctcaaacgcg gcatcgaaaa 180

ggccgtggag aaggtcaccg agaccctgct caagggcgcc aaggaggtcg agaccaagga 240

gcagattgcg gccaccgcag cgatttcggc gggtgaccag tccatcggtg acctgatcgc 300

cgaggcgatg gacaaggtgg gcaacgaggg cgtcatcacc gtcgaggagt ccaacacctt 360

tgggctgcag ctcgagctca ccgagggtat gcggttcgac aagggctaca tctcggggta 420

cttcgtgacc gacccggagc gtcaggaggc ggtcctggag gacccctaca tcctgctggt 480

cagctccaag gtgtccactg tcaaggatct gctgccgctg ctcgagaagg tcatcggagc 540

cggtaagccg ctgctgatca tcgccgagga cgtcgagggc gaggcgctgt ccaccctggt 600

cgtc 604

<210> 8
<211> 604
<212> DNA
<213> Mycobacterim celatum Type 1

<400> 8
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cgacgtcgcg ggtgacggta cgacgacggc cacggtgctg gcccaggcgc tggtcaagga 120

gggcctgcgc aacgtcgccg ccggcgccaa cccgctcggc ctgaagcgcg gcatcgagaa 180

ggccgtcgag aaggtcaccg agacgctgct caagggcgcc aaggaggtcg agaccaagga 240

gcagattgct gccaccgcgg ccatctccgc cggcgaccag tcgatcggcg acctgatcgc 300

cgaggccatg gacaaggtcg gcaacgaggg cgtcatcacc gtcgaggagt ccaacacctt 360

cggcctgcag ctcgagctca ccgagggtat gcgcttcgac aagggctaca tctcgggtta 420

# Sequence Listing

cttcgtcacc gacgccgagc gtcaggaggc ggtgctcgag gagccgtaca tcctgctggt 480

cagctccaag gtgtcgacgg tcaaggacct gcttccgctg ctggagaagg tcatccaggc 540

cggcaagccg ctgctgatca tcgccgagga cgtcgagggc gaagccctct ccaccctggt 600

cgtc 604

<210> 9
<211> 604
<212> DNA
<213> Mycobaterium celatum TypeII

<400> 9
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aggcctgcgc aacgtcgccg ccggtgccaa cccgctcggc ctgaagcgcg gtatcgagaa 180

ggccgtcgag aaggtcaccg agacgctgct caagggcgcc aaggaggtcg agaccaagga 240

gcagatcgct gccaccgcgg ccatctccgc cggtgaccag tcgatcggcg acctgatcgc 300

cgaggcgatg gacaaggtcg gcaacgaggg cgtcatcacc gtcgaggagt ccaacacctt 360

cggcctgcag ctcgagctca ccgagggtat gcgcttcgac aagggctaca tctcgggtta 420

cttcgtcacc gacgccgagc gtcaggaggc ggtgctcgag gagccctaca tcctgctggt 480

cagctccaag gtgtcgacgg tcaaggatct gctgccgctg ctggagaagg tcatccaggc 540

cggcaagccg ctgctgatca tcgccgagga cgtcgagggt gaggcgttga gcaccctggt 600

cgtc 604

<210> 10
<211> 604

# Sequence Listing

<212> DNA
<213> Mycobacterium chelonae

<400> 10
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aggtctgcgt aacgtcgctg ccggcgccaa cccgctcggc ctgaagcgcg gcatcgagaa 180

ggccgtggag gccgtcacca gctctctgct ggactccgcc aaggagatcg acaccaagga 240

gcagatcgcg gccaccgcgg gcatctccgc gggtgaccag tccatcggtg atctgatcgc 300

cgaggccatg gacaaggtcg gcaacgaggg tgtcatcacc gtcgaggagt ccaacacctt 360

cggcctgcag ctggagctca ccgagggcat gcgcttcgac aagggctaca tctcgggtta 420

cttcgtgacc gacgccgagc gtcaggaagc cgtcctggag gatccctaca tcctgctggt 480

cagctccaag gtctcgaccg tcaaggacct acttcccttg ctggagaagg tcatccaggg 540

cggcaagccg ctgctgatca tcgccgagga cgttgagggc gaggctctct cgaccctggt 600

cgtc 604

<210> 11
<211> 604
<212> DNA
<213> Mycobacterium chitae

<400> 11
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aggtctgcgc aacgtcgcgg ccggcgccaa cccgctcggc ctgaagcgcg gcatcgagaa 180

ggccgtcgag accgtctcgg agaacctgct caagtcggcc aaggaggtcg agaccaagga 240

# Sequence Listing

gcagatcgcc gccaccgccg ggatctccgc gggcgacacc accatcggtg acctgatcgc 300

cgaggccatg gacaaggtgg gcaacgaggg tgtcatcacc gtcgaggagt ccaacacctt 360

cggcctgcag ctggagctca ccgagggcat gcgcttcgac aagggctaca tctcgggcta 420

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cagctcgaag atctcgaccg tcaaggacct gctgccgctg ctggagaagg tcatccagtc 540

cggcaagccg ctgctgatca tcgccgagga cgtcgagggc gaggccctgt cgaccctggt 600

ggtc 604

<210> 12
<211> 604
<212> DNA
<213> Mycobacterium microti

<400> 12
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gggcctgcgc aacgtcgcgg ccggcgccaa cccgctcggt ctcaaacgcg gcatcgaaaa 180

ggccgtggag aaggtcaccg agaccctgct caagggcgcc aaggaggtcg agaccaagga 240

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cttcgtgacc gacccggagc gtcaggaggc ggtcctggag gacccctaca tcctgctggt 480

cagctccaag gtgtccactg tcaaggatct gctgccgctg ctcgagaagg tcatcggagc 540

# Sequence Listing

cggtaagccg ctgctgatca tcgccgagga cgtcgagggc gaggcgctgt ccaccctggt 600

cgtc 604

<210> 13
<211> 604
<212> DNA
<213> Mycobaterium flavescens

<400> 13
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ggccgtcgag aaggtcaccg agacgctgct gaagtcggcc aaggaggtcg agaccaagga 240

gcagatcgct gccaccgccg cgatctcggc gggcgacacc cagatcggca agctgatcgc 300

cgaggccatg gacaaggtcg gcaacgaggg tgtcatcacc gttgaggagt ccaacacctt 360

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gtcgtccaag gtgtcgaccg tcaaggatct gctcccgttg ctggagaagg tcattcaggc 540

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<210> 14
<211> 604
<212> DNA
<213> Mycobaterium fortuitum 6841

<400> 14

# Sequence Listing

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aggtctgcgc aacgtcgctg ccggcgccaa cccgctcggc ctgaagcgcg gcatcgagaa 180

ggccgtcgag aaggtcaccg agacgctgct gaagagcgcc aaggaggtgg agaccaagga 240

gcagatcgct gccaccgccg gtatctccgc cggtgaccag tccatcggtg acctgatcgc 300

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cagctccaag gtctcgaccg tcaaggacct gctgccgctg ctggagaagg tcatccagtc 540

cggcaagccg ctgctgatca tcgccgagga cgtcgagggc gaagccctgt cgaccctggc 600

ggtc 604

<210> 15
<211> 604
<212> DNA
<213> Mycobacterium fortuitum 49403

<400> 15
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aggtctgcgc aacgtcgctg ccggcgccaa cccgctcggc ctgaagcgcg gcatcgagaa 180

ggccgtcgag aaggtcaccg agacgctgct gaagagcgcc aaggaggtgg agaccaagga 240

gcagatcgct gccaccgccg gtatctccgc cggtgaccag tccatcggtg acctgatcgc 300

cgaggccatg gacaaggtcg gcaacgaggg tgtcatcacc gtcgaggaga gcaacacctt 360

# Sequence Listing

cggcctgcag ctggagctca ccgagggtat gcgcttcgac aagggctaca tctcgggtta 420

cttcgtgacc gacgccgagc gtcaggaagc cgtcctggag gatccctaca tcctgctggt 480

cagctccaag gtctcgaccg tcaaggacct gctgccgctg ctggagaagg tcatccagtc 540

cggcaagccg ctgctgatca tcgccgagga cgtcgagggc gaagccctgt ccaccctggt 600

ggtc 604

<210> 16
<211> 604
<212> DNA
<213> Mycobacterium fortuitum 49404

<400> 16
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ggctgtcggg gccgtcaccc agacgctgct gaagtccgcc aaggaggtgg agaccaagga 240

gcagatcgct gccaccgccg cgatctccgc cggtgacgtc cagatcggcg agctcatcgc 300

cgaggccatg gacaaggtcg gcaacgaggg tgtcatcacc gtcgaggagt cgaacacctt 360

cggcctgcag ctggagctca ccgagggtat gcgcttcgac aagggctaca tctcgggtta 420

cttcgtgacc gacgccgagc gtcaggaagc ggtcctcgag gatccgtaca tcctgctcgt 480

ctcgtcgaag gtctcgacgg tcaaggacct gctgcccctg ctggagaagg tcatccaggc 540

cggcaagccg ctgctgatca tcgccgagga cgtcgagggc gaagccctgt ccaccctggt 600

ggtc 604

# Sequence Listing

<210> 17
<211> 604
<212> DNA
<213> Mycobacterium gastri

<400> 17
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gggcctgcgc aacgtcgcgg ccggcgccaa cccgctgggc ctgaagcgcg gcatcgagaa 180

ggccgtcgag aaggtcaccg agacgctgct caagggcgcc aaggaggtcg agaccaagga 240

gcagatcgcg gccaccgcgg ccatctccgc cggtgaccag tcgatcggcg acctgatcgc 300

cgaggcgatg gacaaggtgg gcaacgaggg tgtcatcacc gtcgaggagt ccaacacctt 360

cggcctgcag ctcgagctca ccgagggcat gcggttcgac aagggctaca tctccggcta 420

cttcgtcacc gacgctgagc gtcaggaagc tgttctggag gacccctaca tcctgctggt 480

cagctcgaag gtctcgaccg tcaaggacct gctgccgctg ttggagaagg tcatccaggc 540

gggcaagccg ctgctgatca tcgccgagga cgtcgagggc gaggcgctgt ccaccctggt 600

cgtc 604

<210> 18
<211> 604
<212> DNA
<213> Mycobacterium genavense

<400> 18
ggaggacccc tacgagaaga tcggcgctga gctggtcaag gaagtcgcca agaagaccga 60

cgacgtcgcc ggtgacggca ccacgacggc caccgtgctc gctcaggcgc tcgtcaagga 120

# Sequence Listing

gggcctgcgc aacgtggcgg ccggcgccaa cccgctgggc ctcaagcgcg gcatcgagaa 180

ggccgtcgaa aaggtcaccg agacgctgct gaagtcggcc aaggatgtcg agaccaagga 240

ccagatcgct gccaccgccg cgatttccgc gggcgaccag tcgatcggcg acctgatcgc 300

cgaggcgatg gacaaggtcg gcaacgaggg cgtcatcacc gtcgaggagt ccaacacctt 360

cgggctgcag ctcgagctca ccgagggtat gcgcttcgac aagggctaca tctcgggcta 420

cttcgtcacc gacgccgagc gtcaggaagc cgtcctggag gacccgttca tcctgctggt 480

cagctccaag gtgtcgacgg tcaaggacct gctgccgctg ctggagaagg tcatccaggc 540

cggcaagccg ctgctgatca tcgccgagga cgtcgagggc gaggcgctga gcaccctggt 600

cgtc 604

<210> 19
<211> 603
<212> DNA
<213> Mycobacterium gordonae

<400> 19
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ggcctgcgca acgtagccgc cggcgccaac ccgctggggc tgaagcgcgg catcgagaag 180

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ggcaagccgc tgctgatcat cgccgaggac gtcgagggcg aagcgctgtc gaccctggtc 600

gtc 603

<210> 20
<211> 604
<212> DNA
<213> Mycobacterium haemophilum

<400> 20
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cgacgtcgct ggtgatggca ccacgacggc gacggtgctg gctcaggcgc tggtcaaaga 120

gggcctgcgt aacgtcgcgg ccggcgccaa cccgctgggt ctcaagcgcg gcatcgagaa 180

ggcggtcgag aagatcaccg agacgctgct caagggcgcc aaggaggtcg agaccaagga 240

ccaaattgcg gccaccgcag cgatctcggc gggtgaccag tcgatcggcg acctgatcgc 300

cgaggcgatg gacaaggtcg gcaacgaggg cgtcatcacc gtcgaggagt ccaacacctt 360

cggcctgcag ctcgagctca ccgagggcat gcggttcgat aagggctaca tctcgggcta 420

cttcgtcacc gacgccgagc gccaggaagc cgtcctggag gacccctaca tcctgctggt 480

cagctccaag gtgtcgaccg tcaaggacct gctgccactg ttggagaagg tcatccaggc 540

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cgtc 604

<210> 21
<211> 603
<212> DNA

# Sequence Listing

<213> Mycobacterium interjectum

<400> 21
gaggacccgt acgagaagat cggcgccgag ctggtcaagg aagtcgccaa gaagaccgac 60

gacgtcgccg gtgacggcac gacgacggcc acggtgctgg cccaggccct ggtcaaggag 120

ggcctgcgca acgtcgcggc cggcgccaac ccgccggcgc tcaagcgcgg catcgaaaag 180

gccgtcgaga aggtcaccga gaccctgctg aagtcggcca aggatgtcga gaccaaggag 240

cagatcgccg cgaccgccgc gatctccgcg ggcgaccagt cgatcggcga cctcatcgcc 300

gaggcgatgg acaaggtcgg caacgagggc gtcatcaccg tcgaggagtc caacaccttc 360

ggcctgcagc tcgagctcac cgagggcatg cggttcgaca agggctacat ctcgggctac 420

ttcgtcaccg acgccgagcg tcaggaagcg gtcctcgagg acccctacat cctgctggtc 480

agctcgaagg tgtcgacggt caaggacctg ttgccgctgc tggagaaggt catccaggcc 540

ggcgagccgc tgttgatcat cgccgaggac gtcgagggcg aggcgctgtc caccctggtc 600

gtc 603

<210> 22
<211> 604
<212> DNA
<213> Mycobacterium intermedium

<400> 22
ggaggacccg tacgagaaga tcggcgccga gctggtcaag gaagttgcca agaagacgga 60

cgacgtcgcc ggtgacggca ccacgacggc caccgtgctc gcccaggcgc tggtgcgcga 120

gggtctgcgc aatgtcgctg ccggtgccaa cccgctgagc ctgaagcgcg gtatcgagaa 180

ggcagtcgag aaggtcaccg agaccctgct caagtcggcc aaggaggtcg agaccaagga 240

# Sequence Listing

ccagatcgct gccaccgcag cgatttccgc gggggaccag tcgatcggcg acctgatcgc 300

cgaggcgatg gacaaggtcg gcaacgaggg tgtcatcacc gtcgaggagt ccaacacctt 360

cggcctgcag cttgagctca ccgagggtat gcggttcgac aagggttaca tctcgggcta 420

cttcgtcacc gacgccgagc gtcaggaagc cgtcctggaa gacccgtaca tcctgctggt 480

cagctccaag gtttcgacgg tcaaggacct gctcccgctg ctggagaagg tcattcaggc 540

cggcaagccg ctgctgatca tcgccgagga cgtcgagggc gaggcgctga gcaccctggt 600

cgtc 604

<210> 23
<211> 604
<212> DNA
<213> Mycobacterium intracellulare

<400> 23
ggaggacccg tacgagaaga tcggcgccga gctggtcaag gaagtcgcca agaagaccga 60

cgacgtcgcc ggtgacggca cgacgacggc cacggtgctg gctcaggcgt tggtccgcga 120

gggcctgcgt aacgtcgccg ccggcgccaa cccgctgggt ctcaagcgcg gcatcgagaa 180

ggccgtcgag aaggtcaccg agaccctgct caagtcggcc aaggaggtcg agaccaagga 240

ccagatcgct gccaccgcgg cgatttcggc gggcgaccag tcgatcggtg acctcatcgc 300

cgaggggatg gacaaggtcg gcaacgaggg cgtcatcacc gtcgaggagt ccaacacctt 360

cggcctgcag ctcgagctca ccgagggcat gcggttcgac aagggctaca tctcgggcta 420

cttcgtcacc gacgccgagc gtcaggaagc ggtcctcgag gaccccttca tcctgctggt 480

cagctccaag gtgtcgacgg tcaaggacct gctgccgctg ctggagaagg tcatccaggc 540

cggcaagccg ctgctgatca tcgccgagga cgtcgagggt gaggctctga gcaccctggt 600

# Sequence Listing

cgtc 604

<210> 24
<211> 604
<212> DNA
<213> Mycobaterium kansasii Type I

<400> 24
ggaggacccg tacgagaaga tcggcgccga gctggtcaag gaagtcgcca agaagaccga 60

cgacgtcgct ggcgacggca ccaccacggc caccgtgctt gcgcaggcgc tggtcaaaga 120

gggcctgcgc aacgtcgcgg ccggcgccaa cccgctgggc ctcaagcgcg gcatcgagaa 180

ggccgtcgag aaggtcaccg agacgctgct caagggcgcc aaggaggtcg agaccaagga 240

gcagatcgcg gcgaccgcgg ccatctccgc cggcgaccag tcgatcggcg acctgatcgc 300

cgaggcgatg gacaaggtcg gcaacgaggg tgtcatcacc gtcgaggagt ccaacacctt 360

cggcctgcaa ctcgagctca ccgagggcat gcggttcgac aagggttaca tctccggcta 420

cttcgtcacc gacgccgagc gtcaggaagc ggttctggag gacccctaca tcctgctggt 480

cagctcgaag gtatcgacgg tcaaggacct gctgccgctg ctggagaagg tcatccaggc 540

cggcaagccg ctgctgatca tcgccgagga cgtcgagggc gaggcgctgt ccaccctggt 600

cgtc 604

<210> 25
<211> 604
<212> DNA
<213> Mycobaterium kansasii Type II

<400> 25
ggaggacccg tacgagaaga tcggcgccga gctggtcaag gaagtcgcca agaagaccga 60

# Sequence Listing

cgacgtcgcc ggcgacggca ccaccacggc cactgtgctc gcgcaggcgt tggtcaaaga 120

gggcctgcgc aacgtcgcgg ccggcgccaa cccactgggc ctgaagcgcg gcatcgagaa 180

ggcagtcgag aaggtcaccg agacgctgct caagggcgcc aaggaggtcg agaccaagga 240

gcagatcgct gccaccgcgg ccatctccgc gggtgaccag tcgatcggcg acctgatcgc 300

cgaggcgatg gacaaggtgg gcaacgaggg tgtcatcacc gtcgaggagt ccaacacctt 360

cggcctgcag ctcgagctca ccgagggtat gcggttcgac aagggctaca tctccggcta 420

cttcgtcacc gacgccgagc gtcaggaagc agttctggag gacccctaca tcctgctggt 480

cagctccaag gtgtccaccg tcaaggacct gctgccgctg ctggagaagg tcatccaggc 540

cggcaagccg ctgctgatca tcgccgagga cgtcgagggc gaggcgctgt ccaccctggt 600

cgtc 604

<210> 26
<211> 604
<212> DNA
<213> Mycobaterium kansasii Type III

<400> 26
ggaggacccg tacgagaaga tcggcgccga gctggtcaag gaagtcgcca agaagaccga 60

cgacgtcgcc ggcgacggca ccaccacggc cactgtgctc gcgcaggcgc tcgtcaagga 120

gggcctgcgc aacgtggcgg ccggcgccaa cccgctgggc ctgaagcgcg gcatcgagaa 180

ggccgtcgag aaggtcaccg agaccttgtt caagggtgcc aaggaggtcg agaccaagga 240

gcagatcgcg gccaccgcgg ccatctcggc cggtgaccag tcgattggcg acctgatcgc 300

cgaggcgatg gacaaggtag gcaacgaggg tgtcatcacc gtcgaggagt ccaacacctt 360

# Sequence Listing

aggcctgcag ctcgagctca ccgagggtat gcgctttgac aagggctaca tctccggcta 420

cttcgtcacc gacgccgagc gtcaggaagc agtgctggaa gacccctaca tcctgctggt 480

cagctccaag gtgtcgacgg tcaaggacct gctgccgctg ctggagaagg tcatccaggc 540

cggcaagccg ctgctgatca tcgccgagga cgtcgagggt gaggctttga gcaccctggt 600

cgtg 604

<210> 27
<211> 604
<212> DNA
<213> Mycobacterium leprae

<400> 27
ggaggacccg tacgagaaga ttggcgctga gttggtcaag gaagtcgcca agaagacaga 60

tgacgtcgcc ggtgatggca ccacgacggc caccgtgctg gcccaggcat tggtcaaaga 120

gggcctacgc aacgtcgcgg ccggcgccaa cccgctaggt ctcaagcgtg gcatcgagaa 180

agctgtcgat aaggtaactg agactctgct caaggacgct aaggaggtcg aaaccaagga 240

acaaattgct gccactgcag cgatttcggc gggtgaccag tcgatcggtg atctgatcgc 300

cgaggcgatg gacaaggttg gcaacgaggg tgttatcacc gtcgaggaat ccaacacctt 360

cggtctgcag ctcgagctca ccgagggaat gcggttcgac aagggctaca tttcgggcta 420

cttcgtcacc gacgccgagc gtcaggaagc tgtcctagag gagccctaca tccttctggt 480

cagctccaaa gtgtctaccg tcaaggacct gctgccgctg ctagagaagg tcatccaggc 540

cggcaagtcg ctgctgatca ttgctgagga tgtcgagggt gaggcgttgt ctaccctggt 600

cgtc 604

# Sequence Listing

<210> 28
<211> 604
<212> DNA
<213> Mycobacterium malmoense

<400> 28
ggaggacccg tacgagaaga tcggcgccga gctggtcaag gaagtcgcca agaagaccga 60

cgacgtggcc ggtgacggca cgacgacggc caccgtgctg gcgcaggcgc tggtcaaaga 120

gggcctgcgc aacgtcgcgg ccggtgccaa cccgctcagc ctcaagcgcg gcatcgagaa 180

ggcggtcgag aaggtcaccg agaccctgct caagtcggcc aaggaggtcg agaccaagga 240

gcagatcgcc gcgaccgccg cgatctcggc gggcgaccag tcgatcggtg acctgatcgc 300

cgaggcgatg gacaaggtcg gcaacgaggg cgtcctcacc gtcgaggagt ccaacacctt 360

cggcctgcag ctcgagctca ccgagggcat gcggttcgac aagggctaca tctcgggcta 420

cttcgtcacc gaccccgagc gtcaggaagc ggtcctggag gacccctaca tcctgctggt 480

cagctccaag gtgtcgacgg tcaaggacct gctgccgctg ctggagaagg tcattcaggc 540

cggcaagccg ctgctgatca tcgccgagga cgtcgagggc gaggcgctct ccaccctggt 600

cgtc 604

<210> 29
<211> 604
<212> DNA
<213> Mycobacterium marinum

<400> 29
ggaggacccg tacgagaaga tcggcgctga gctggtcaag gaagttgcca agaagaccga 60

cgacgtggcc ggtgacggca cgacgacggc caccgtgctg gcccaggcgc tggtcaagga 120

aggcctgcgc aacgttgcgg ccggtgccaa cccgctcggt ctgaagcgcg gcatcgagaa 180

# Sequence Listing

ggcagtcgag aaggtcaccg agaccttgct caagtcggcc aaagaggtcg agaccaagga 240

gcagatcgcg gcgaccgcag ccatctccgc cggcgaccag tcgatcggcg acctgatcgc 300

cgaggcgatg gacaaggtgg gcaacgaggg cgtcatcacc gtcgaggagt ccaacacctt 360

cggcctgcag ctcgagctca ccgaggggat gcggttcgac aagggctaca tctcgggcta 420

cttcgtcacc gacgccgagc gtcaggaagc ggtcctggag gacccctaca tcctgctggt 480

cagttccaag gtgtccaccg tgaaggacct gctgccgctg ctggagaagg tcattcaggg 540

cggcaagccg ctgctgatca tcgccgagga cgtcgagggc gaggcgctgt ccaccctggt 600

cgtc 604

<210> 30
<211> 604
<212> DNA
<213> Mycobacterium mucogenicum

<400> 30
ggaggacccg tacgagaaga tcggcgctga gctggtcaag gaagttgcca agaagacgga 60

cgacgtcgct ggcgacggca ccaccaccgc caccgtgctg gcccaggccc tggttcgcga 120

aggcctgcgc aacgtcgctg ccggcgccaa cccgctcggc ctgaagcgcg gcatcgagaa 180

ggccgtcgag gctgtcacca agggcctgct ggcttccgcc aaggaggtcg agaccaagga 240

gcagatcgct gccaccgccg ggatctcggc cggtgaccag tccatcggcg acctgatcgc 300

cgaggccatg gacaaggtcg gcaacgaggg tgtcatcacc gtcgaggaga gcaacacctt 360

cggcctgcag ctggagctca ccgagggtat gcgcttcgac aagggctaca tctcgggtta 420

cttcgtgacc gacgccgagc gtcaggaagc ggtcctcgag gacccgttca tcctgctggt 480

# Sequence Listing

cagctcgaag atctcgaccg tcaaggacct gctgccgctg ctggagaagg tcatccagtc 540

gggcaagccg ctgctgatca tcgccgagga cgtcgagggc gaagccctgt cgaccctggt 600

cgtc 604

<210> 31
<211> 604
<212> DNA
<213> Mycobacterium neoaurum

<400> 31
ggaggacccg tacgagaaga tcggcgccga gctggtcaaa gaggtcgcca agaagaccga 60

tgacgtcgcg ggcgacggca ccaccaccgc caccgtgctg gcccaggccc tggttcgcga 120

aggtctgcgc aacgtcgcgg ccggcgccaa ccccctcggc ctgaagcgcg gcatcgagaa 180

ggccgtcgcg gccgtcaccg agcgcctgct ctcgaccgcc aaagaggtcg agaccaagga 240

gcagatcgct gccaccgcgg gcatctccgc cggtgaccag tcgatcggtg acctgatcgc 300

cgaggcgctg gacaaggtcg gcaacgaggg tgtcatcacc gtcgaggagt ccaacacctt 360

cggcctgcag ctggagctca ccgagggtat gcgcttcgac aagggctaca tctcgggtta 420

cttcgtgacc gacgccgagc gtcaggaagc cgtcctggag gatccctaca tcctgctggt 480

cagctccaag gtctcgaccg tcaaggacct gctgccgctg ctggagaagg tcatccagtc 540

cggcaagccg ttgctgatca tcgccgagga cgtcgagggc gaagccctgt cgaccctggt 600

ggtc 604

<210> 32
<211> 604
<212> DNA
<213> Mycobacterium nonchromogenicum

# Sequence Listing

<400> 32
ggaggatccc tacgagaaga tcggcgctga gctggtcaaa gaggtcgcca agaagactga 60

cgacgtcgcg ggtgacggca ccaccaccgc caccgtgctc gcccaggccc tggtcaagga 120

aggcctgcgc aacgtggccg ccggcgccaa cccgctgggt ctgaagcgcg gcatcgagaa 180

ggccgttgag aaggtcacct cgaccctgct ggcttcggcc aaggaggtcg agaccaagga 240

gcagatcgcg gccaccgccg gtatctccgc gggtgaccag agcatcggtg acctgatcgc 300

cgaggccatg gacaaggtcg gcaacgaagg tgtcatcacc gtcgaggagt ccaacacctt 360

cggcctgcag ctggagctca ccgagggcat gcgcttcgac aagggctaca tctcgggtta 420

cttcgtgacc gacgccgagc gtcaggaagc cgtcctggag gacccctaca tcctgctggt 480

cagctcgaag atctcgaccg tcaaggacct gctgcccttg ctggagaagg tcatccagtc 540

cggcaagccg ttgctgatca tcgccgagga cgtcgagggc gaggccctgt cgaccctggt 600

cgtg 604

<210> 33
<211> 604
<212> DNA
<213> Mycobaterium paratuberculosis

<400> 33
ggaggacccg tacgagaaga tcggcgccga gctggtcaag gaagtcgcca agaagaccga 60

cgacgtcgcc ggtgacggca cgacgacggc cacggtgctc gcccaggcgt tggtccgcga 120

gggcctgcgc aacgtcgcgg ccggcgccaa cccgctgggt ctcaagcgcg gcatcgagaa 180

ggccgtcgag aaggtcaccg agaccctgct caagtcggcc aaggaggtcg agaccaagga 240

ccagatcgct gccaccgcgg ccatctccgc gggcgaccag tcgatcggcg acctgatcgc 300

# Sequence Listing

cgaggcgatg gacaaggtcg gcaacgaggg cgtcatcacc gtcgaggagt ccaacacctt 360

cggcctgcag ctcgagctca ccgagggtat gcggttcgac aagggttaca tctcgggcta 420

cttcgtcacg gacgccgagc gtcaggaagc ggtcctcgag gacccgttca tcctgctggt 480

cagctccaag gtctcgaccg tcaaggacct gctgccgctg ctggagaagg tcatccaggc 540

cggcaagccg ctgctgatca tcgccgagga cgtcgagggc gaggccctgt ccaccctggt 600

cgtc 604

<210> 34
<211> 604
<212> DNA
<213> Mycobaterium phlei

<400> 34
cgaggatccg tacgagaaga tcggcgccga gctggtcaaa gaggtcgcca agaagaccga 60

cgatgtcgcg ggtgacggca ccaccaccgc caccgtcctg gcccaggcgc tggtgcgcga 120

gggtctgcgc aacgttgccg ccggcgccaa cccgatggct ctgaagcgcg gtatcgagaa 180

ggccgtcgag aaggtcaccg agaccctgct gaagtcggcc aaggaggtcg agaccaagga 240

gcagatcgct tcgaccgccg cgatctcggc cggcgacacc cagatcggcg agctgatcgc 300

cgaggccatg gacaaggtcg gcaacgaggg tgtcatcacc gtcgaggaga gcaacacctt 360

cggcctgcag ctggagctca ccgagggtat gcgcttcgac aagggctaca tctcgggtta 420

cttcgtgacc gacgccgagc gtcaggaagc cgtcctcgag gatccgtaca tcctgctggt 480

gtcgggcaag gtctcgaccg tcaaggacct gctgccgctg ctggagaagg tcatccagtc 540

gggcaagccg ctgctgatca tcgccgagga cgtcgagggc gaggccctgt cgaccctggt 600

# Sequence Listing

cgtg 604

<210> 35
<211> 604
<212> DNA
<213> Mycobacterium peregrinum

<400> 35
ggaggacccg tacgagaaga tcggcgctga gctggtcaaa gaggtcgcca agaagaccga 60

cgacgtcgcg ggtgacggca ccaccaccgc caccgttctg gcccaggccc tggttcgcga 120

aggtctgcgc aacgtcgctg ccggcgccaa cccgctcggc ctgaagcgcg gcatcgagaa 180

ggctgtcgag aaggtcaccg agaccctcct gaagtccgcc aaggaggtgg agaccaagga 240

gcagatcgct gccaccgccg gtatctccgc cggagaccag tccatcggcg acctgatcgc 300

cgaggccatg gacaaggtcg gcaacgaggg tgtcatcacc gtcgaggaga gcaacacctt 360

cgggctgcag ctggagctca ccgagggcat gcgcttcgac aagggctaca tctcgggcta 420

cttcgtgacc gacgccgagc gtcaggaagc cgtcctggag gatccctaca tcctgctggt 480

cagctcgaag atctcgaccg tcaaggacct gctgccgctg ctggagaagg tcatccagtc 540

cggcaagccg ctgctgatca tcgccgagga cgtcgagggc gaagccctgt cgaccctggt 600

ggtc 604

<210> 36
<211> 604
<212> DNA
<213> Mycobacterium scrofulaceum

<400> 36
ggaggacccg tacgagaaga tcggcgccga gctggtcaag gaagtcgcca agaagaccga 60

# Sequence Listing

cgacgtcgcc ggtgacggca cgacgacggc cacggtgctg gcccaggcgc tggtcaagga 120

gggcctgcgc aacgtcgcgg cgggcgccaa cccgctgagc ctcaagcgcg gcatcgagaa 180

ggcggtcgag aaggtcaccg agaccctgct caagtcggcc aaggaggtcg agaccaagga 240

ccagatcgcc gccaccgcgg cgatttcggc gggcgaccag tcgatcggcg acctgatcgc 300

cgaggcgatg gacaaggtcg gcaacgaggg cgtcatcacc gtcgaggagt ccaacacctt 360

cggcctgcag ctcgagctca ccgagggcat gcggttcgac aagggctaca tctcgggcta 420

cttcgtcacc gacgccgagc ggcaggaagc ggtcctggag gacccctaca tcctgctggt 480

cagctcgaag gtgtcgacgg tcaaggacct gctgccgctg ttggagaagg tcatccaggc 540

cggcaagccg ctgctgatca tcgccgagga cgtcgagggc gaggcgcttt ccaccctggt 600

cgtc 604

<210> 37
<211> 604
<212> DNA
<213> Mycobacterium senegalense

<400> 37
ggaggacccg tacgagaaga tcggcgctga gctggtcaag gaagtcgcca agaagactga 60

cgacgtcgcg ggtgacggca ccaccaccgc caccgttctg gcccaggccc tggttcgtga 120

aggtctgcgt aacgtcgctg ccggcgccaa cccgctcggc ctgaagcgcg gcatcgagaa 180

ggccgtcgag aaggtcaccg agacgctgct caagagcgcc aaggaggtgg agaccaagga 240

gcagatcgct gccaccgccg cgatctcggc gggcgacacc cagatcggca agctgatcgc 300

cgaggccatg gacaaggtcg gcaacgaggg tgtcatcacc gttgaggagt ccaacacctt 360

cgggctgcag ctcgagctca ccgagggtat gcgcttcgac aagggctaca tctcgggtta 420

# Sequence Listing

cttcgtgacc gacgccgagc gtcaggaagc ggtcctcgag gatccctgca tcctgctcgt 480

gtcgtccaag gtgtcgaccg tcaaggatct gctcccgttg ctggagaagg tcattcaggc 540

cggcaagccg gtgctgatca tcgccgagga cgtcgagggt gaggccctgt cgaccctggt 600

ggtc 604

<210> 38
<211> 604
<212> DNA
<213> Mycobacterium shimoidei

<400> 38
ggaggacccg tacgagaaga tcggcgccga gctggtcaag gaagtcgcca agaagaccga 60

cgacgtcgcc ggtgacggca ccaccaccgc caccgtgctg gcccaggcgc tggtccacga 120

ggggctgcgc aacgtcgcgg ccggtgccaa cccgctcagc ctgaaacgcg gtatcgagaa 180

ggccgttgag aaggtcaccg agaccttgct caagggcgcc aaggaagtcg agaccaagga 240

gcagatcgcg gccacggcgg ccatctccgc cggtgaccag tcgatcggcg acctgatcgc 300

cgaggcgatg gacaaggtcg gcaacgaggg cgtcatcacc gtcgaggagt ccaacacctt 360

cggcctgcag ctcgagctca ccgagggtat gcggttcgac aagggctaca tttcgggtta 420

cttcgtcacc gacgccgagc gtcaggaggc tgtgctcgag gagccctaca tcctgctggt 480

cagctccaag gtgtcgacgg tcaaggacct gctgccgctg ctggagaagg tcatgcaggc 540

cggcaagccg ctgctgatca tcgccgagga cgtcgagggc gaggctttga gcaccctggt 600

cgtc 604

<210> 39

# Sequence Listing

<211> 604
<212> DNA
<213> Mycobacterium simiae

<400> 39
ggaggacccc tacgagaaga tcggcgctga gctggtcaag gaagtcgcca agaagaccga 60

cgacgtcgcc ggtgacggca ccacgacggc caccgtgctc gctcaggcgc tcgtcaagga 120

gggcctgcgc aacgtggcgg ccggcgccaa cccgctgggc ctcaagcgcg gcatcgagaa 180

ggccgtcgaa aaggtcaccg agacgctgct gaagtcggcc aaggatgtcg agaccaagga 240

ccagatcgct gccaccgccg cgatttccgc gggcgaccag tcgatcggcg acctgatcgc 300

cgaggcgatg gacaaggtcg gcaacgaggg cgtcatcacc gtcgaggagt ccaacacctt 360

cgggctgcag ctcgagctca ccgagggtat gcgcttcgac aagggctaca tctcgggcta 420

cttcgtcacc gacgccgagc gtcaggaagc cgtcctggag gacccgttca tcctgctggt 480

cagctccaag gtgtcgacgg tcaaggacct gctgccgctg ctggagaagg tcatccaggc 540

cggcaagccg ctgctgatca tcgccgagga cgtcgagggc gaggcgctga gcaccctggt 600

cgtc 604

<210> 40
<211> 604
<212> DNA
<213> Mycobacterium smegmatis

<400> 40
cgaggacccc tacgagaaga tcggtgctga gctcgtcaaa gaggtcgcca agaagaccga 60

cgatgtcgct ggcgacggca ccaccaccgc caccgtcctg gctcaggccc tggttcgcga 120

aggcctgcgc aacgtcgctg ccggcgccaa cccgctcggc ctgaagcgcg gcatcgagaa 180

# Sequence Listing

ggccgtcgag aaggtcaccg agaccctgct gaagtccgcc aaggaggtgg agaccaagga 240

gcagatcgct gccaccgccg gtatctccgc cggtgaccag tccatcggcg acctgatcgc 300

cgaggccatg gacaaggtcg gcaacgaggg tgtcatcacc gtcgaggagt ccaacacctt 360

cggcctgcag ctcgagctca ccgagggtat gcgcttcgac aagggctaca tctcgggtta 420

cttcgtgacc gacgccgagc gtcaggaagc ggtcctcgag gatccctaca tcctgctggt 480

cagctcgaag gtctcgaccg tcaaggacct gctgccgctg ctggagaagg tcatccagtc 540

cggcaagccg ctgctgatca tcgccgagga cgtcgagggc gaagccctgt cgaccctggt 600

ggtc 604

<210> 41
<211> 604
<212> DNA
<213> Mycobacterium szulgai

<400> 41
ggaggacccg tacgagaaga tcggcgccga gctggtcaag gaagttgcca agaagaccga 60

cgacgtcgcc ggtgacggca cgacgacggc caccgtgttg gcccaggcgc tggtcaagga 120

gggcctgcgc aacgtagcgg ccggcgccaa cccgctgggt ctcaagcgcg gcatcgagaa 180

ggccgtcgag aagatcaccg agaccctgct caagtcggct aaggacgtcg agaccaagga 240

gcagatcgcg gccaccgcgg ccatctccgc gggcgaccag tcgatcggcg acttgatcgc 300

cgaggcgatg gacaaggtcg gcaatgaggg cgtcatcacc gtcgaggagt ccaacacctt 360

cggcctgcag ctcgagctca ccgagggcat gcggttcgac aagggctaca tctcgggcta 420

cttcgtcacc gacgccgagc gtcaggaggc cgtcctcgag gacccttaca tcctgttggt 480

cgcctccaag gtgtcgacgg tcaaggacct gttgccgctg ctggagaagg tcatccaggg 540

# Sequence Listing

cggcaagccg ctgctgatca tcgccgagga cgtcgagggc gaggctttga gcaccctggt 600

cgtc 604

<210> 42
<211> 604
<212> DNA
<213> Mycobacterium terrae

<400> 42
ggaggacccc tacgagaaga tcggcgccga gctggtcaaa gaggtcgcca agaagaccga 60

cgatgtcgcc ggtgacggca ccaccacggc caccgtgctg gcacaggcgc tggtcaagga 120

aggcctgcgc aacgtggccg ccggcgccaa cccgctggcc ctgaagcgcg gcatcgagaa 180

ggccgtcgag aaggtctccg agaccctgct gaaggacgcc aaggaggtcg agaccaagga 240

gcagatcgcg gctaccgccg ggatctccgc gggcgaccag tccatcggtg acctgatcgc 300

cgaggcgatg gacaaggtcg gcaacgaggg tgtcatcacc gtcgaggagt ccaacacctt 360

cggcctgcag ctggagctca ccgagggtat gcgcttcgac aagggctaca tctcgggtta 420

cttcgtcacc gacgccgacc gtcaggaagc ggttctcgag gacccctaca tcctgctggt 480

cagctccaag atctcgacgg tcaaggacct gctcccactg ctggagaagg tcattcaggg 540

cggtaagccg ctgctgatca tcgccgagga cgtcgagggc gaggccctgt ccaccctggt 600

ggtc 604

<210> 43
<211> 604
<212> DNA
<213> Mycobacterium thermoresistibile

# Sequence Listing

<400> 43

ggaggacccc tacgagaaga tcggcgctga gctggtcaag gaagtcgcca agaagaccga 60

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aggtttgcgc aacgtcgcgg ccggggccaa cccgctcgct ctgaagcgcg gcatcggagc 180

cgctgtcgag aaggtcaccg agaccctgct caagtcggcc aaggaggtcg agaccaagga 240

gcagatcgcc aacaccgccg cgatctcggc cggcgaccag cagaccggtg agctgatcgc 300

cgaggcgatg gacaaggtcg gcaacgaggg tgtcatcacc gtcgaggagt cgcagacctt 360

cggtctgcag ctcgagctca ccgagggtat gcgcttcgac aagggctaca tctcggggta 420

cttcgtgacc gacgcggagc ggcaggaagc cgttctggag gatccctaca tcctgctggt 480

cagctcgaag gtctcgactg tcaaggatct gctgccgctg ctggagaagg tcatccagtc 540

cggcaggccg ctgctgatca tcgccgagga cgtcgaaggc gaggcgctgt cgaccctggt 600

cgtc 604

<210> 44
<211> 604
<212> DNA
<213> Mycobacterium triviale

<400> 44

ggaggacccg tacgagaaga tcggcgccga gctggtcaag gaagtcgcca agaagaccga 60

cgatgtcgcc ggtgacggca ccaccacggc caccgtgctc gcccaggcgc tggtgcgcga 120

gggcctgcgc aacgtcgccg cgggcgccaa cccgatgggc ctgaagcgcg gcatcgaggc 180

ggccaccgag aagatcgccg agaccctgct caagggcgcc aaagaggtgg agaccaagga 240

gcagatcgct gccaccgccg ggatctccgc cggggacagc tccatcggtg agctgatcgc 300

# Sequence Listing

cgaggcgatg gacaaggtcg gcaacgaggg tgtcatcacc gtcgaggagg cccagacctt 360

cggcctgcag ctcgagctca ccgagggtat gcgcttcgac aagggctaca tctccggcta 420

cttcgtcacc gacgccgagc gtcaggaggc cgtgctggag gacccctaca tcctgctggt 480

gtccggcaag gtgtccaccg tcaaggacct gcttccgctg ctggagaagg tcatccagtc 540

cggcaagccg ctgctgatca tcgccgagga cgtcgagggc gaggcgctgt cgaccctggt 600

ggtc 604

<210> 45
<211> 604
<212> DNA
<213> Mycobacterium tuberculosis

<400> 45
ggaggatccg tacgagaaga tcggcgccga gctggtcaaa gaggtagcca agaagaccga 60

tgacgtcgcc ggtgacggca ccacgacggc caccgtgctg gcccaggcgt tggttcgcga 120

gggcctgcgc aacgtcgcgg ccggcgccaa cccgctcggt ctcaaacgcg gcatcgaaaa 180

ggccgtggag aaggtcaccg agaccctgct caagggcgcc aaggaggtcg agaccaagga 240

gcagattgcg gccaccgcag cgatttcggc gggtgaccag tccatcggtg acctgatcgc 300

cgaggcgatg gacaaggtgg gcaacgaggg cgtcatcacc gtcgaggagt ccaacacctt 360

tgggctgcag ctcgagctca ccgagggtat gcggttcgac aagggctaca tctcggggta 420

cttcgtgacc gacccggagc gtcaggaggc ggtcctggag gacccctaca tcctgctggt 480

cagctccaag gtgtccactg tcaaggatct gctgccgctg ctcgagaagg tcatcggagc 540

cggtaagccg ctgctgatca tcgccgagga cgtcgagggc gaggcgctgt ccaccctggt 600

cgtc 604

# Sequence Listing

<210> 46
<211> 604
<212> DNA
<213> Mycobacterium ulcerans

<400> 46
ggaggacccg tacgagaaga ttggcgctga gctggtcaag gaagttgcca agaagaccga 60

cgacgtggcc ggtgacggca cgacgacggc caccgtgctg gcccaggcgc tggtcaagga 120

aggcctgcgc aacgttgcgg ccggtgccaa cccgctcggt ctgaagcgcg gcatcgagaa 180

ggcagtcgag aaggtcaccg agaccctgct caaatcggcc aaagaggtcg agaccaagga 240

gcagatcgcg gcgaccgcag ccatctccgc cggcgaccag tcgatcggcg acctgatcgc 300

cgaggcgatg gacaaggtgg gcaacgaggg cgtcatcacc gtcgaggagt ccaacacctt 360

cggcctgcag ctcgagctca ccgaggggat gcggttcgac aagggctaca tctcgggcta 420

cttcgtcacc gacgccgagc gtcaggaagc ggtcctggag gacccctaca tcctgctggt 480

cagctccaag gtgtccaccg tcaaggacct gctgccgctg ctggagaagg tcattcaggg 540

cggcaagccg ctgctgatca tcgccgagga cgtcgagggc gaggcgctgt ccaccctggt 600

cgtc 604

<210> 47
<211> 604
<212> DNA
<213> Mycobacterium vaccae

<400> 47
ggaggacccg tacgagaaga tcggcgctga gctggtcaaa gaggtcgcca agaagaccga 60

cgacgtcgcg ggcgacggta ccaccaccgc caccgtgctc gctcaggctc tggttcgcga 120

# Sequence Listing

aggcctgcgc aacgtcgcag ccggcgccaa cccgctcggc ctcaagcgtg gcatcgagaa 180

ggctgtcgag gctgtcaccc agtcgctgct gaagtcggcc aaggaggtcg agaccaagga 240

gcagatttct gccaccgcgg cgatctccgc cggcgacacc cagatcggcg agctcatcgc 300

cgaggccatg gacaaggtcg gcaacgaggg tgtcatcacc gtcgaggagt cgaacacctt 360

cggcctgcag ctcgagctca ccgagggtat gcgcttcgac aagggctaca tctcgggtta 420

cttcgtgacc gacgccgagc gccaggaagc cgtcctggag gatccctaca tcctgctggt 480

cagctccaag gtgtcgaccg tcaaggatct gctcccgctg ctggagaagg tcatccaggc 540

cggcaagccg ctgctgatca tcgccgagga cgtcgagggc gaggccctgt ccacgctggt 600

ggtc 604

<210> 48
<211> 604
<212> DNA
<213> Mycobacterium wolinskyi

<400> 48
ggaggacccg tacgagaaga tcggcgctga gctggtcaaa gaggtcgcca agaagaccga 60

cgacgtcgcc ggcgacggca ccaccaccgc caccgttttg gcccaggctc tggttcgcga 120

aggtctgcgc aacgtcgcgg ccggcgccaa cccgctcggc ctgaagcgcg gcatcgagaa 180

ggccgtcgag aaggtcaccg agacgctgct gaagagcgcc aaggaggtgg agaccaagga 240

gcagatcgct gccaccgccg gtatctccgc cggtgaccag tccatcggcg acctgatcgc 300

cgaggccatg gacaaggtcg gcaacgaggg tgtcatcacc gtcgaggaga gcaacacctt 360

cggcctgcag ctggagctca ccgagggtat gcgcttcgac aagggctaca tctcgggtta 420

# Sequence Listing

cttcgtgacc gacgccgagc gtcaggaagc cgtcctcgag gatccctaca tcctgctggt 480

cagctcgaag gcctcgaccg tcaaggacct gctgccgctg ctggagaagg tcatccagtc 540

cggcaagccg ctgctgatca tcgccgagga cgtcgagggc gaggccctgt cgaccctggt 600

ggtc 604

<210> 49
<211> 604
<212> DNA
<213> Mycobacterium parafortuitum

<400> 49
ggaggacccg tacgagaaga tcggcgctga gctggtcaaa gaggtcgcca agaagaccga 60

cgacgtcgcg ggcgacggca ccaccaccgc caccgtgctc gctcaggccc tggttcgcga 120

aggtctgcgc aacgtcgcag ccggcgccaa cccgctcggc ctcaagcgtg gcatcgagaa 180

ggctgtcgag gctgtcaccc agggtctgct gaagtcggcc aaggaggtcg agaccaagga 240

gcagatcgct gccaccgccg cgatctccgc cggcgacacc cagatcggcg agctcatcgc 300

cgaggccatg gacaaggtcg gcaacgaggg tgtcatcacc gtcgaggagt cgaacacctt 360

cggcctgcag ctggagctca ccgaaggcat gcgcttcgac aagggctaca tctcgggtta 420

cttcgtgacc gacgccgagc gtcaggaagc cgtcctggag gatccctaca ttctgctggt 480

cagctccaag atctcgacgg tcaaggacct gctgccgctg ctggagaagg tcatccagtc 540

cggcaagccg ctgctgatca tcgccgagga cgtcgagggc gaagccctgt cgaccctggt 600

ggtc 604

<210> 50
<211> 604

# Sequence Listing

<212> DNA
<213> Mycobacterium farcinogenes

<400> 50
ggaggacccg tacgagaaga tcggcgctga gctcgtcaaa gaggtcgcca agaagaccga 60

cgacgtcgcg ggcgacggca ccaccaccgc caccgttctg gcccaggccc tggttcgcga 120

aggtctgcgc aacgtcgctg ccggcgccaa cccgctcggc ctgaagcgcg gcatcgagaa 180

ggccgtcgag aaggtcaccg agacgctgct caagagcgcc aaggaggtgg agaccaagga 240

gcagatcgct gccaccgccg gtatctccgc cggtgaccag tccatcggtg acctgatcgc 300

cgaggccatg gacaaggtcg gcaacgaggg tgtcatcacc gtcgaggaga gcaacacctt 360

cggcctgcag ctggagctca ccgagggtat gcgcttcgac aagggctaca tctcgggtta 420

cttcgtgacc gacgccgagc gtcaggaagc cgtcctggag gatccctaca tcctgctggt 480

cagctccaag gtctcgaccg tcaaggatct gctgccgctg ctggagaagg tcatccagtc 540

cggcaagccg ctgctgatca tcgccgagga cgtcgagggc gaagccctgt ccaccctggt 600

ggtc 604

<210> 51
<211> 604
<212> DNA
<213> Tsukamurella paurometabola

<400> 51
cgaggatccc tacgagaaga tcggcgccga gctcgtcaag gaggtcgcca agaagaccga 60

cgacgtcgcg ggcgacggca ccaccaccgc caccgttctg gcccaggcgc tcgtgcgcga 120

gggtctgcgc aacgtggctg cgggtgcgaa cccgctgggc ctcaagcggg gcatcgagaa 180

ggccgtcgag gccgtgaccg agcacctgct caaggaggcc aaggaggtcg agaccaagga 240

# Sequence Listing

gcagatcgct gctaccgcgg gcatctcggc cggcgacccc gccatcggtg agctcatcgc 300

cgaggccatg gacaaggtcg gcaaggaagg cgtcatcacc gtcgaggaga gcaacacctt 360

cggtctccag ctggagctca ccgagggcat gcgcttcgac aagggcttca tctccggcta 420

cttcgccacc gacgccgagc gtcaggaggc cgtgctcgag gacgcctaca tcctgctcgt 480

gtcgagcaag atctcgaccg tgaaggacct gctgccgctg ctggagaagg tcatccagtc 540

gggcaagccg ctcgcgatca tcgccgagga cgtcgagggc gaggccctgt cgacgctcat 600

cgtc 604

<210> 52
<211> 604
<212> DNA
<213> Tsukamurella tyrosinosolvens

<400> 52
cgaggatccc tacgagaaga tcggcgccga gctcgtcaag gaggtcgcca agaagaccga 60

cgacgtcgcg ggcgacggca ccaccaccgc caccgttctg gcccaggcgc tcgtgcgcga 120

gggcctgcgc aacgtggccg cgggcgcgaa cccgctgggc ctcaagcggg gcatcgagaa 180

ggccgtcgag gccgtctccg agcacctgct gaaggccgcc aaggaggtcg agaccaagga 240

gcagatcgct gctaccgcgg gcatctcggc cggcgacccc gccatcggtg agctcatcgc 300

cgaggccatg gacaaggtcg gcaaggaagg cgtcatcacc gtcgaggaga gcaacacctt 360

cggcctccag ctggagctca ccgagggcat gcgcttcgac aagggcttca tctcgggcta 420

cttcgccacc gacgccgagc gtcaggaggc cgtgctcgag gacgcctacg tgctgctcgt 480

cgccggcaag atctcgaccg tcaaggacct gctgccgctg ctggagaagg tcatccagtc 540

# Sequence Listing

gggcaagccg ctcgcgatca tcgccgagga cgtcgagggc gaggccctgt cgacgctcat 600

cgtc 604

<210> 53
<211> 604
<212> DNA
<213> Tsukamurella pulmonis

<400> 53
cgaggatccc tacgagaaga tcggcgccga gctcgtcaag gaggtcgcca agaagaccga 60

cgacgtcgcg ggcgacggca ccaccaccgc caccgttctg gcccaggcgc tcgtgcgcga 120

gggtctgcgg aacgtggccg cgggcgcgaa cccgctgggc ctcaagcggg gcatcgagaa 180

ggcggtcgac gccgtcaccg agcacctgct gaaggccgcc aaggaggtcg agaccaagga 240

gcagatcgct gctaccgcgg gcatctcggc cggcgacccc gccatcggtg agctcatcgc 300

cgaggccatg gacaaggtcg gcgaggaagg cgtcatcacc gtcgaggaga gcaacacctt 360

cggtctccag ctggagctga ccgagggcat gcgcttcgac aagggcttca tctcgggcta 420

cttcgccacc gacgcggagc gccaggaggc cgtcctcgag gacgcctacg tgctgctcgt 480

ctcgggcaag atctcgaccg tcaaggacct gctgccgctg ctggagaagg tcatccagtc 540

gggcaagccg ctcgcgatca tcgccgagga cgtcgagggc gaggccctgt cgacgctcat 600

cgtc 604

<210> 54
<211> 604
<212> DNA
<213> Nocardia carnea

<400> 54

# Sequence Listing

cgaggatccc tacgagaaga tcggcgccga gctggtcaag gaagtcgcca agaagaccga 60

cgacgtcgcg ggcgacggca ccaccaccgc caccgtgctc gcccaggcgc tggtgcgcga 120

gggtctgcgc aacgtggccg cgggcgcgaa cccgctgggc ctcaagcgca gcatcgagaa 180

ggccgtcgag gccgtgaccg ccaagctgct cgacaccgcc aaggaggtcg agaccaagga 240

gcagatcgcc gccaccgcgg gcatctccgc gggcgacgcg tccatcggtg agctgatcgc 300

cgaggccatg gacaaggtcg gcaaggaagg cgtcatcacc gtcgaggaga gcaacacctt 360

cggcctccag ctggagctga ccgagggcat gcgcttcgac aagggctaca tctccggcta 420

cttcgtgacc gatcccgagc gtcaggaagc ggtcctcgag gatccctaca tcctgctcgt 480

cggctcgaag gtctccaccg tcaaggacct gctgccgctg ctggagaagg tcatccaggc 540

cggcaagccg ctgctgatca tcgccgagga cgtcgagggc gaggccctgt cgaccctggt 600

cgtg 604

<210> 55
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> HSPF3

<400> 55
atcgccaagg agatcgagct 20

<210> 56
<211> 20
<212> DNA
<213> Artificial Sequence

# Sequence Listing

<220>
<223> HSPR3

<400> 56
aaggtgccgc ggatcttgtt 20